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EXAMINER

CURS, NATHAN M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2633

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/768,153

Applicant(s)

DESURVIRE, EMMANUEL

Examiner

Nathan Curs

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,8-11 and 14 is/are rejected.
- 7) ☒ Claim(s) 3-7,12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 11 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by Cao (US Patent No. 6337755).

Regarding claim 1, Cao discloses a regenerator for a wavelength division multiplex transmission system (abstract and Fig. 1, element 10), comprising a demultiplexer adapted to separate the signals of various channels (Figure 1, element 12), a plurality of optical modulators each adapted to receive signals from the demultiplexer (Figure 1, elements 20) and a modulation clock from a clock distribution unit (col. 4, lines 26-35 and col. 6, line 58 to col. 7, line 3), and a multiplexer adapted to combine the signals modulated by said modulators (Figure 1, element 30), wherein the clock distribution unit comprises a reference clock (col. 4, lines 12-16) and, for each modulator, means for synchronizing the phase of a copy of the reference clock with the signals applied to the modulator (col. 4, lines 16-20).

Regarding claim 11, Cao discloses a wavelength division multiplex transmission system comprising a regenerator (col. 2, lines 21-25) according to claim 1 (Figure 1, element 12, 20, and 30; col. 4, lines 26-35; col. 6, line 58 to col. 7, line 3; and col. 4, lines 12-20).

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Regarding claim 14, Cao discloses a regenerator for a wavelength division multiplex transmission system (abstract and Fig. 1, element 10), comprising a demultiplexer adapted to separate the signals of various channels (Figure 1, element 12), a clock distribution unit (fig. 1, element 24), a plurality of optical modulators each adapted to receive signals from the demultiplexer (Figure 1, elements 20) and a modulation clock from the clock distribution unit (col. 4, lines 26-35 and col. 6, line 58 to col. 7, line 3), and a multiplexer adapted to combine the signals modulated by said modulators (Figure 1, element 30), wherein the clock distribution unit comprises a reference clock (col. 4, lines 12-16) and, for each modulator, means for synchronizing the phase of a copy of the reference clock with the signals applied to the modulator (col. 4, lines 16-20).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cao (US Patent No. 6337755) in view of Ransijn (US Patent No. 6347128).

Regarding claim 2, Cao discloses a phase synchronization means, comprising a clock recovery circuit, for each modulator (col. 4, lines 16-20), but does not disclose that the means includes a phase-locked loop. Ransijn discloses a self-aligning clock recovery circuit that includes a phase-locked loop (abstract and col. 5, lines 36-51). It would have been obvious to an artisan at the time of the invention to use the phase-locked loop based clock recovery circuit

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taught by Ransijn, for the clock recovery circuit of Cao, to provide the benefit of a self-aligning clock recovery circuit.

Regarding claim 8, Cao discloses a reference clock supplied by a clock recovery circuit (col. 4, lines 12-16), but does not disclose a voltage-controlled oscillator. Ransijn discloses a self-aligning clock recovery circuit that has a clock output supplied by a voltage-controlled oscillator (abstract and Figure 6, element 26). It would have been obvious to an artisan at the time of the invention to use the clock recovery circuit with voltage controlled oscillator, taught by Ransijn, for the clock recovery circuit of Cao, to provide the benefit of a self-aligning clock recovery circuit.

Regarding claim 9, Cao in view of Ransijn disclose a clock recovery circuit receiving the signal that is applied to the regenerator (Cao: Figure 1, elements 11, 12, 21, 22, and 24), a clock recovery circuit and a voltage-controlled oscillator controlled in accordance with the signals input to the clock recovery circuit (Ransijn: Figure 6, element "Data in" and col. 5, lines 36-51). It would have been obvious to an artisan at the time of the invention to use the self-aligning clock recovery circuit of Ransijn, where the voltage-controlled oscillator of the clock recovery circuit is controlled in accordance with the signal applied to the regenerator, for the clock recovery circuit of Cao, so that the VCO of the CRC would generate a clock output of the CRC that would be self-aligned with the phase of the input signal.

Regarding claim 10, Cao in view of Ransijn discloses a coupler for sampling a portion of the input signals of the regenerator (Cao: Figure 1, element 16), a clock recovery circuit adapted to receive signals sampled by the coupler (Cao: Figure 1, element 24), and a clock recovery circuit that supplies a control signal for the oscillator (Ransijn: Figure 6, element PD(t) and col. 5, lines 36-51).

Allowable Subject Matter

5. Claims 3-7, 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 19 May 2004 regarding claims 1, 2, and 8-10 have been fully considered but they are not persuasive.

Regarding claim 1, the applicant argues that the claim describes a single reference clock and that Cao shows a reference clock for each channel. However, the applicant's argument that claim 1 "describes a single reference clock" implies exclusivity not present in the claim language. The claim language "comprising a clock distribution unit... comprising a reference clock" does indicate the same exclusivity argued by the applicant. Thus, assuming the applicant is using limitations from the specification for the applicant's claim 1 arguments, the specification is not the measure of invention and limitations contained therein cannot be read into the claims for the purpose of avoiding the prior art.

The applicant also argues that Cao does not disclose "the clock distribution unit, modulation clock and reference clock" of claim 1; however, the use of "the" in the applicant's argument implies antecedent exclusivity not present in the claim language.

The applicant also argues that, assuming Cao teaches a modulation clock, the modulation clock is not from the clock distribution unit (although the exact claim language is "a modulation clock from a clock distribution unit"). Although the drive circuit disclosed by Cao generates one or more driving voltage signals that drive the modulator, the source signal for the

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resulting modulation clock(s) output from the drive circuit is solely the reference clock signal from the clock distribution unit, and thus the modulation clock is "from a clock distribution unit".

Further, the applicant argues that Cao does not indicate that the plurality of optical modulators receive signals from the demultiplexer and a modulation clock of the clock distribution unit. However, "the clock distribution unit" is not the language used in the claim, as described above.

In addition, the applicant argues that in Cao the phase of "a copy of the reference clock" is not synchronized with the signals applied for each modulator. The applicant recognizes the output of the clock recover circuit is a reference clock. This reference clock signal is phase synchronized with the signals applied to the modulator as disclosed by Cao. The signal output from a drive circuit of Cao has been previously described as a modulation clock. However, the source signal for the modulation clock output from the drive circuit is solely the reference clock signal from the clock distribution unit, and thus the modulation clock is "a copy of the reference clock".

Regarding claim 2, the applicant argues that Ransjin does not disclose a phase locked loop for each modulator; however, the teaching of Ransjin used in the claim 2 rejection is a self-aligning clock recovery circuit that includes a phase-locked loop. Cao already discloses a clock recovery circuit for each modulator.

The applicant argues that the reason to combine Ransjin with Cao is a result of hindsight, and says this is because Cao appears to disclose a means for phase-synchronization which does not include the use of a phase-locked loop. However, the applicant does not cite a reference in Cao that supports the argument that Cao teaches away from a phase locked loop. Cao is simply silent regarding a phase locked loop in the clock recovery circuit. What Cao and

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Ransijn both teach is a clock recovery circuit having an input signal and an output clock signal, where Ransijn's clock recovery circuit comprises a phase locked loop. As described in the claim 2 rejection, the Ransijn clock recovery circuit is a self-aligning clock recovery circuit; this advantage is the motivation for using the Ransijn clock recovery circuit (which comprises a PLL) for the clock recovery circuit of Cao. This is not hindsight reasoning. The examiner notes that the applicant didn't respond to the examiner's argument supporting reconstruction of the circuit of Cao.

Regarding claim 10, the applicant argues that the phase detector output of Ransijn is not a control signal; however, this is the applicant's previous argument repeated without addressing the examiner's previous response to the first instance of this argument, thus the applicant's argument regarding claim 10 in the response of 19 May 2004 is considered non-responsive.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Conclusion

7. Any inquiry concerning this communication from the examiner should be directed to N. Curs whose telephone number is (703) 305-0370. The examiner can normally be reached on M-F (from 9 AM to 5 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached at (703) 305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.


JASON CHAN
SUPERVISORY PATENT EXAMINER
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